WHAT IS CLAIMED IS:

1. A double-sided cooling type semiconductor module comprising:

a semiconductor device;

a first and second coolers sandwiching the semiconductor device, wherein each of the first and second coolers includes a coolant; and

sandwiching means causing the first and second coolers to tightly sandwich the semiconductor device,

wherein at least the first cooler includes a transformable member,

wherein the transformable member includes a first surface facing the coolant and a second surface facing the semiconductor device, and

wherein the transformable member is transformable to be flexed in one of a coolant direction and a semiconductor device direction.

2. The double-sided cooling type semiconductor module of Claim 1,

wherein the first cooler that includes the transformable member is a transformable type cooler while the second cooler is a fixed type cooler whose positional relationship with the semiconductor device is fixed.

3. The double-sided cooling type semiconductor module of Claim 2,

wherein the transformable type cooler includes a cooler body forming a coolant chamber,

wherein the transformable member is formed of a metal plate,

wherein a periphery of the transformable member is fixed to the cooler body so that the transformable member is used as a cover of the coolant chamber, and

wherein a transformable amount of the transformable member is controlled by an operational amount of the sandwiching means.

4. The double-sided cooling type semiconductor module of Claim 3,

wherein the cooler body includes a metal laminate that is formed by piling up metal plates.

5. The double-sided cooling type semiconductor module of Claim 2,

wherein the sandwiching means includes:

a pressing frame adjoining and pressing the fixed type cooler in a direction of the transformable type cooler; and

fastening means that fastens the pressing frame to the transformable type cooler, and

wherein, while a pressing pressure applied to the fixed type cooler is varied according to an operational amount of the fastening means, the pressing pressure is applied to

the transformable member of the transformable type cooler via the semiconductor device.

6. The double-sided cooling type semiconductor module of Claim 1,

wherein the first cooler is a transformable type cooler that includes an additional transformable member, in addition to the transformable member, and a cooler body forming a coolant chamber,

wherein each of the transformable member and the additional transformable member is formed of a metal plate,

wherein a periphery of the transformable member is fixed to the cooler body such that the transformable member is used as a cover of the coolant chamber to accept heat from the semiconductor device,

wherein the additional transformable member is disposed to face the transformable member via the coolant chamber while including a support member upwardly protruding toward the transformable member within the coolant chamber, and

wherein the sandwiching means presses the support member in a direction from the additional transformable member to the transformable member so that the support member causes the transformable member to be pressed in a direction of the semiconductor device according to an operation of the sandwiching means.

7. The double-sided cooling type semiconductor module of Claim 6,

wherein the sandwiching means includes:

a base member whose positional relation with the cooler body of the transformable type cooler is fixed; and

pressing contact means attached to the base member and being movable in both approaching and departing direction with respect to the support member of the additional transformable member,

wherein, according to an operational amount of the pressing contact means, a movable amount toward the transformable member of the base support member is varied, and

wherein, according to the movable amount toward the transformable member of the base support member that causes the transformable member to be pressed, a variation amount toward the semiconductor device of the transformable member is varied.

8. The double-sided cooling type semiconductor module of Claim 7,

wherein the second cooler is a fixed type cooler whose positional relationship with the semiconductor device is fixed, and

wherein the fixed type cooler and the base member is linked by a linking member such that a positional relationship between the fixed type cooler and the base member is fixed.

9. The double-sided cooling type semiconductor module of Claim 1,

wherein each of the first and second coolers includes the transformable member to be a transformable type cooler,

wherein the transformable type cooler includes a cooler body forming a coolant chamber,

wherein the transformable member is formed of a metal plate and a periphery of the transformable member is fixed to the cooler body so that the transformable member is used as a cover of the coolant chamber, and

wherein a variation amount of the transformable member is controlled by an operational amount of the sandwiching means.

10. The double-sided cooling type semiconductor module of Claim 1,

wherein, of the transformable member, the first surface facing the coolant includes a cooling fin.

11. The double-sided cooling type semiconductor module of Claim 1,

wherein the sandwiching means uses a pressure of the coolant.